

In the Claims

Applicants elect the invention of Group I, claims 1-25 and 29-90 with traverse. Please cancel non-elected claims 26-28 without prejudice to their later reintroduction in this or any other successor patent application.

Please amend all elected claims 1-25 and 29-90 as follows:

- 9/10 C17
- a1
1. (AMENDED) A [support] system [for] supporting a sash that is laterally removable from between opposed window jambs, the [support] system comprising:
 - a. a pair of sash support arms pivotally mounted respectively on opposite stiles of the sash[;]
 - [b.] the support arms being mounted] to pivot freely between inwardly dependent positions that the support arms assume when not supporting the sash and outwardly extended positions that the support arms assume when supporting the sash;
 - [c.] b. the sash support arms in the inwardly dependent positions being disposed for engaging sash supporting platforms of sash shoes as a sash is lowered [into] toward a supported position between a pair of counterbalanced shoes locked in the jambs; and
 - [d.] c. [the outwardly extending positions of the sash support arms being braced so that] outer end regions of the sash support arms [rest] in the outwardly extended positions resting on the shoes in positions vertically under counterbalance elements connected to the shoes to support the weight of the sash.

2. (AMENDED) The system of claim 1 wherein the sash supporting platforms of the shoes [include platforms extending] extend toward the sash stiles so that inner regions of the platforms engage the sash support arms in the inwardly dependent positions and so that outer regions of the platforms engage the outer end regions of the sash support arms in the outwardly [extending] extended positions.

Sub C1 } 3. (AMENDED) The system of claim 2 wherein the counterbalance [lifts are applied] elements are connected to the shoes in regions vertically above the outer platform regions [where the outer end regions of the sash support arms rest].

4. (AMENDED) The system of claim 1 wherein the shoes include locking elements deployable to lock the shoes [within the jambs] to jamb projections during removal and replacement of the sash.

5. (AMENDED) The system of claim 4 wherein the locking elements are pivotally mounted on the shoes and latched in undeployed positions out of engagement with window jambs.

6. (AMENDED) The system of claim 4 wherein the locking elements are formed as extruded metal hooks [that are cut from metal extrusions].

Sub C2 } 7. (AMENDED) The system of claim 1 wherein the shoes and the sash support arms are each [cut from] formed of metal extrusions.

Sub C1 } 8. (AMENDED) The system of claim 7 wherein the shoes are [cut to] available in different widths [to fit different] formed as different predetermined lengths of the shoe extrusion so that different widths of shoes fit different widths of jamb channels.

9. (AMENDED) The system of claim 8 wherein [the shoes are configured] shoes of different widths are adapted to connect to different numbers of counterbalance elements.

10. (AMENDED) The system of claim 7 wherein the extrusions for the sash support arms are [extruded] available in different lengths to fit different jamb dimensions.

11. (AMENDED) The system of claim 10 wherein the different length sash support arms [are] have extruded [with] code lines indicating size.

4
sub C3 > 12. (AMENDED) In a [counterbalance] system [for] counterbalancing a window sash supported by a pair of counterbalanced sash shoes so that the sash extends between a pair of jambs from which the sash is removable by maneuvering the sash upward and laterally while the shoes are locked in the jambs, the improvement comprising:

- a. the shoes being formed of a metal [extrusions cut to shoe width] extrusion having a predetermined profile
- b. the profile configuring an elevational configuration of the shoes;
- c. [shoe extrusions being interconnected] shoes interconnected with counterbalance elements; and
- c. the profile configuring a lower [regions] region of the [shoe extrusions] shoes for supporting the sash.

13. (AMENDED) The improvement of claim 12 wherein the sash is supported on the shoes by sash support arms [cut from] formed of a metal [extrusions] extrusion.

sub C1 > 14. (AMENDED) The improvement of claim 13 wherein the sash support arms are movably mounted on the sash to rest on the shoes in outwardly extending positions of the sash support arms located vertically below the upper region interconnected with the counterbalance elements.

sub C4 > 15. (AMENDED) The improvement of claim 13 wherein the sash support arms are mounted on the sash to pivot between outwardly extending positions supporting the sash and inwardly dependent positions that the support arms assume when not supporting the sash.

sub C1 > 16. (AMENDED) The improvement of claim 12 wherein the shoes include locking elements that engage [the jambs] jamb projections to lock the shoes during sash removal and replacement

17. (AMENDED) The improvement of claim 16 wherein the locking elements are [cut from] formed of a metal [extrusions] extrusion and are pivotally mounted on the shoes.

Sub C1 18. (AMENDED) The improvement of claim 16 wherein the locking elements are formed as hooks that catch on the jamb projections and the shoes have latches that latch the locking elements in undeployed positions out of engagement with window jambs.

Sub C5 19. (AMENDED) The improvement of claim 12 [including mid-regions] wherein the profile configures a mid-region of the [shoe extrusions having] shoes to support guides that slide in the jambs to guide vertical movement of the shoes.

af 20. (AMENDED) The improvement of claim 19 wherein the [shoe extrusions are configured with] profile configures a guide retaining [grooves] groove that [receive] receives the guides.

21. (AMENDED) The improvement of claim 20 wherein the [shoe extrusions have] profile configures a latch retaining [grooves] groove for receiving hook latches and a pin [grooves] groove for receiving pins of shoe hooks.

Sub C1 22. (AMENDED) The improvement of claim 12 wherein the shoes are [cut to] formed of predeterminedly variable lengths of the extrusion to form shoes of different widths [to fit] fitting different sizes of jamb channels.

23. (AMENDED) The improvement of claim 22 wherein shoes of different widths [are configured] have upper regions adapted to interconnect to different numbers of counterbalance elements.

Sub C6 24. (AMENDED) The improvement of claim 13 wherein [the] different metal extrusions having different profile lengths form sash support arms [are extruded] available in different lengths to accommodate different distances between opposite shoes.

Sub C1 25. (AMENDED) The improvement of claim 24 wherein the different lengths of sash support arms [are extruded with] have extruded code lines indicating size.

af Sub C1 29. (AMENDED) A counterbalance sash shoe comprising:

- a. [an extruded metal body cut to shoe width] a metal extrusion having a predetermined profile establishing an elevational configuration of the shoe;
- b. the profile configuring an upper region of the [extruded body being configured] shoe to interconnect with a counterbalance; [and]
- c. the profile configuring a lower region of the [extruded body being configured] shoe as a platform to support a sash[.]; and
- d. the shoe having a width established by a predetermined length of the extrusion.

30. (AMENDED) The shoe of claim 29 including a locking hook mounted on the shoe [for locking] and deployable to an operative position in which the hook hangs downward from the shoe [when the hook is deployed].

31. (AMENDED) The shoe of claim 30 wherein the hook is formed of a metal extrusion [cut to hook width].

32. (AMENDED) The shoe of claim 30 including a spring latch for retaining the hook in an [undeployed] inoperative position in which the hook does not hang downward from the shoe.

33. (AMENDED) The shoe of claim 32 wherein the hook is manually movable to a latched engagement with the spring latch and is unlatched from the spring latch [with a tool] by pressing between ends of the hook and the spring latch.

34. (AMENDED) The shoe of claim 30 wherein the [shoe body is formed with] profile configures a pin groove for receiving a pin for pivoting the hook and a spring groove for retaining the spring latch.

35. (AMENDED) The shoe of claim 29 including a guide mounted on the shoe between the platform and the [interconnect] upper region, the guide being formed of resin material.

sub C1 36. (AMENDED) The shoe of claim 35 wherein the profile configures a mid-region of the shoe [body is formed with] to have an interlock for holding the guide.

37. (AMENDED) The shoe of claim 29 wherein the [shoes are cut to] shoe is available in different widths set by different predetermined lengths of the extrusion to fit different sizes of jamb channels.

38. (AMENDED) The shoe of claim 37 wherein [different widths] the upper regions of shoes of different widths are [configured] adapted to connect to different numbers of counterbalance elements.

- sub C1 39. (AMENDED) A sash support system comprising:
- a. a plurality of sash support elements [cut from] each formed of a metal [extrusions] extrusion having a [different cross-sectional shapes] profile establishing an elevational configuration of the element;
 - b. a profile of a first one of the extruded elements [being configured as] forming a shoe having an upper region engaging a counterbalance and a lower region supporting a sash; and
 - c. a profile of a second one of the extruded elements [being configured as] forming a sash support arm connected to a stile of the sash to engage the sash support region of the shoe.

40. (AMENDED) The system of claim 39 [including] wherein a profile of a third one of the extruded elements [being configured as] forms a shoe lock [connectable] connected to a lower region of the shoe to be movable between deployed and undeployed positions.

sub C1 41. (AMENDED) The system of claim 40 wherein the shoe [is configured with] profile configures a pin groove for receiving a pivot pin supporting the shoe lock.

507
501 } 42. (AMENDED) The system of claim 40 including a resilient latch mounted on the shoe for retaining the shoe lock in the undeployed position.

43. (AMENDED) The system of claim 42 wherein the [hook] shoe lock and the latch are configured so that the [hook] shoe lock is manually latchable and [is] unlatchable [with a tool].

44. (AMENDED) The system of claim [41] 40 wherein the shoe lock is pivotally movable between the deployed and undeployed positions and is downwardly dependent from the shoe in the deployed position.

45. (AMENDED) The system of claim 39 including a resin guide mounted on the shoe [for guiding vertical travel of the shoe].

027 100 c10 } 46. (AMENDED) The system of claim 45 wherein the shoe profile configures a mid-region of the shoe [is configured] with a locking slot for receiving the resin guide.

47. (AMENDED) The system of claim 39 wherein the sash support arm is pivotally mounted on the sash stile to move between [downwardly dependent and outwardly extending positions] an outwardly extending position supporting the sash and a downwardly dependent position that the support arm assumes when not supporting the sash.

48. (AMENDED) The system of claim 47 wherein the sash support arm [is braced from moving beyond the outwardly extending position] braces against a mounting bracket limiting movement of the sash support arm beyond the outwardly extending and downwardly dependent positions.

507 } 49. (AMENDED) The system of claim 39 wherein the shoe is [cut from an extrusion] available in different widths established by different predetermined lengths of the first extruded element to accommodate different widths of jamb shoe channels.

Sub C1. 50. (AMENDED) The system of claim 49 wherein upper regions of different [width shoes] shoe widths are [configured] adapted for connecting to different numbers of counterbalance elements.

Sub C11 51. (AMENDED) The system of claim 39 wherein the sash support arm is [selected] available from a plurality of extrusions [of] having different profiles establishing different [widths] lengths for the support arm.

52. (AMENDED) The system of claim 51 wherein the plurality of extrusions for [different lengths of] the sash support [arms] arm are formed with code lines indicating different arm [length] lengths.

53. (AMENDED) A sash support comprising:

- arg 112 dS & NAB
- a. sash support arms movably mounted respectively on each stile of the sash;
 - [b.] so that the support arms [being movable between inward and outward positions] hang downward in dependent positions when not supporting the sash and move outward to braced positions in response to supporting weight of the sash; and
 - [c.] b. [end regions of] the support arms in the [outward] braced positions having end regions resting on respective sash shoes [that are counterbalanced to support the sash] in support regions vertically under upper shoe regions where counterbalance elements are connected to the sash shoes.

54. (AMENDED) The support of claim 53 wherein mounting brackets pivotally mount the support arms [are pivotally mounted] on the sash stiles and [are limited to] limit movement of the support arms between the [inward and outward] dependent and braced positions.

55. (AMENDED) The support of claim [53 wherein the support of the sash on the sash arms allows the sash to be lifted and maneuvered laterally for withdrawal from a window] 60 wherein a profile of the extrusion for the shoes forms the upper regions connected to counterbalance elements vertically above support regions engaging end regions of the braced support arms.

56. (AMENDED) The support of claim [53 wherein counterbalance lift is applied to the shoes above the end regions of the support arms resting on the shoes] 55 wherein the support regions of the shoes extend toward the sash stiles to engage the support arms in their dependent positions when the sash is lowered into engagement with the shoes.

07
57. (AMENDED) The support of claim [53 wherein the support arms are pivotally mounted on brackets that are secured to the sash stiles, and the support arms engage the brackets to limit the movement of the support arms to the inward and outward positions] 56 wherein the support arms move from their downwardly dependent positions to their outward braced positions by sliding along the support regions of the shoes as the sash is lowered.

58. (AMENDED) The support of claim 53 wherein the sash support arms are [cut from] formed of a metal [extrusions] extrusion.

59. (AMENDED) The support of claim 58 wherein a plurality of extrusions for the support arms [are formed in] have different profiles establishing different arm lengths and are provided with extruded coding lines indicating support arm length.

60. (AMENDED) The support of claim 53 wherein the shoes are [cut from] formed of a metal [extrusions] extrusion.

61. (AMENDED) A system [for] locking counterbalance shoes to window jambs while a sash supported on the shoes is removed from between the window jambs, the [locking] system comprising:

- a. the shoes having hooks that are pivotally mounted on lower regions of the shoes to move between latched and unlatched positions;

- b. the hooks in unlatched positions being dependent from the shoes to engage the jambs and hook under lances formed in the jambs; and
- c. the hooks in latched positions being retained out of engagement with the jambs.

62. (AMENDED) The system of claim 61 wherein resilient latches are carried on the shoes for holding the hooks in the latched positions.

63. (AMENDED) The system of claim 62 wherein the hooks are manually movable into the latched positions and are released from the latched positions [with the aid of a tool] by pressing between ends of the hook and the latch.

64. (AMENDED) The system of claim 61 wherein the hooks and the shoes are each formed of metal extrusions.

65. (AMENDED) The system of claim 64 wherein the shoes have extrusion-formed grooves that receive pivot pins [for] supporting the hooks.

66. (AMENDED) The system of claim 65 wherein the shoes have extrusion-formed slots that retain resilient latches for holding the hooks in the latched positions.

67. (AMENDED) A [support] system [for] supporting a sash that is laterally removable from between opposed window jambs and is supported on counterbalanced shoes that run vertically within the jambs and are separated sufficiently to allow lateral movement of the sash, the [support] system comprising:

- a. the shoes having platforms that extend toward the sash to support the sash;
- b. the sash having a support arm secured to each sash stile [and extending outward from the sash to] so that the sash support arms hang downward in positions in which ends of the support arms engage sash end regions of the shoe platforms when the sash and the support arms are moved downward from above the shoe platforms; [and]

- c. the sash support arms being mounted on the sash to pivot between [inwardly dependent] the downward hanging positions [in which the sash support arms engage sash end regions of the shoe platforms] and outwardly extending positions in which the sash support arms engage jamb end regions of the shoe platforms to transfer the sash weight to the shoes[.]; and
- d. counterbalance elements exerting a lifting force on the shoes in regions vertically above the jamb end regions of the shoe platforms engaged by the sash support arms.

68. (AMENDED) The system of claim 67 wherein [counterbalance lifts are applied to the shoes above the jamb end regions of the platforms] the ends of the support arms slide over steps in the shoe platforms as the support arms move from the sash end regions to the jamb end regions of the shoe platforms.

69. (AMENDED) The system of claim 67 wherein the sash support arms are braced against movement beyond the [downwardly dependent] downward hanging positions and the outwardly extending positions.

70. (AMENDED) The system of claim 67 wherein the sash support arms are [cut from] formed of a metal [extrusions] extrusion.

71. (AMENDED) The system of claim 70 wherein the extrusions are [made] available in different profiles forming support arms of different lengths to accommodate the sash to different window dimensions.

72. (AMENDED) The system of claim 71 wherein [the] extrusions of different profiles are formed with coding lines to indicate the [length] different lengths of the sash support arms.

73. (AMENDED) The system of claim 67 wherein the shoes are [cut from] formed of a metal [extrusions] extrusion.

74. (AMENDED) A [counterbalance] system [for] counterbalancing a laterally removable sash supported by counterbalanced sash shoes respectively running vertically in opposed jambs arranged along opposite stiles of the sash, the [counterbalance] system comprising:

- a. movable support arms extending between the sash and sash shoes biased upward at lifting regions spaced from each sash stile, the support arms being arranged for transferring the weight of the sash to the shoes at support regions vertically below the lifting regions and thereby minimizing any moment arm tending to turn the shoes around a horizontal axis; and
- b. the support arms being movable to allow upward and lateral movement of the sash without interference between the support arms and the lifting regions [for withdrawal] so that the sash can be withdrawn from the jambs when the weight of the sash is lifted from the shoes.

75. (AMENDED) The system of claim 74 wherein the support arms are [pivotally movable and are] braced in [a] support [position to block pivoting movement when the support arms are] positions transferring the weight of the sash to the support regions of the shoes, and the support arms otherwise hang dependently when not transferring sash weight to the shoes.

76. (AMENDED) The system of claim 74 wherein the shoes are [cut from] formed of a metal [extrusions] extrusion.

77. (AMENDED) The system of claim 74 wherein the sash support arms are [cut from] formed of a metal [extrusions] extrusion.

78. (AMENDED) The system of claim 77 wherein the extrusions are [made] available in different profiles forming support arms of different lengths to accommodate the sash to different window dimensions.

79. (AMENDED) The system of claim 74 wherein the [support arms are pivotally mounted on the sash stiles] shoes have platforms extending from the support regions toward the sash to engage support arms hanging dependently from a sash being lowered onto the shoes.

80. (AMENDED) A [support] system [for] supporting a sash that runs vertically within an opposed pair of window jambs containing counterbalance sash shoes, the sash being movable laterally of the jambs for withdrawing the sash from between the jambs, and the [support] system comprising:

a. a pair of movable support arms engaging the sash and the counterbalance shoes and arranged for transferring the weight of the sash to support regions of the counterbalance shoes;

[c.] b. the counterbalance shoes being biased upward at lifting regions arranged vertically above the support regions to minimize any moment arms tending to turn the shoes around horizontal axes[.]; and

[b.] c. the support arms being movable to allow upward and lateral movement of the sash in a region between the lifting regions when the sash is lifted to remove its weight from the support regions[; and].

81. (AMENDED) The system of claim 80 wherein the support arms [are braced against movement when the support arms transfer the sash weight to the support regions] move in response to being subjected and not subjected to sash weight.

82. (AMENDED) The system of claim 80 wherein the shoes are [cut from] formed of a metal [extrusions] extrusion.

83. (AMENDED) The system of claim 80 wherein the sash support arms are [cut from] formed of a metal [extrusions] extrusion.

84. (AMENDED) The system of claim 83 wherein [the] a plurality of extrusions are [made] available in different lengths to form support arms that can bridge different distances between stiles of the sash and the support regions.

Sub E1 } 85. (AMENDED) The system of claim 80 wherein the support arms [are pivotally movable on opposite stiles of the sash] move inwardly toward the sash when the sash is lifted from the shoes.

Sub C17 } 86. (AMENDED) A [support] system [for] supporting a sash that is laterally removable from between opposed window jambs, the [support] system including counterbalance shoes arranged within the jambs to be spaced laterally from stile edges of the sash to allow lateral movement of the sash for removing the sash from between the jambs, and the [support] system comprising:

- a2f- a. sash support arms arranged for bridging distances between the shoes and stiles of the sash, the support arms being movable between sash supporting positions in which the support arms transfer weight of the sash to the shoes and sash uplifted positions in which the support arms hang dependently from the sash and allow lateral movement of the sash;
- b. counterbalance lifting regions for the shoes being arranged vertically above support regions that uphold the weight of the sash transferred via the support arms to the shoes so that the sash weight does not subject the sash shoes to moment arms tending to turn the sash shoes about horizontal axes; and
- c. the sash support arms in the support positions being braced against moving in response to sash weight.

87. (AMENDED) The system of claim 86 wherein the shoes are [cut from] formed of a metal [extrusions] extrusion.

88. (AMENDED) The system of claim 86 wherein the sash support arms are [cut from] formed of a metal [extrusions] extrusion.

Sub W } 89. (AMENDED) The system of claim 88 wherein [the] a plurality of extrusions are made in different lengths to bridge different distances between stiles of the sash and the support regions.